

# Dr Martin P. Rey — Astrophysicist

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🌐 <https://martin-rey.github.io>

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## Research Interests

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**Astrophysics and Cosmology** – formation and evolution of galaxies – statistics of cosmological structures – nature of dark matter – history of the Milky Way – origin of the chemical elements.

## Employment

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<b>Lecturer</b> <i>University of Bath, United Kingdom</i>	Oct 2024 - Ongoing
<b>Beecroft fellow in Cosmology</b> <i>University of Oxford, United Kingdom</i>	Sep 2021 - Sep 2024
<b>Postdoctoral research fellow</b> <i>Lund University, Sweden</i>	Nov 2019 - Sep 2021

## Education

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<b>Ph.D in Astrophysics (Awarded 28th January 2020)</b> <i>University College London, United Kingdom</i>	Oct 2016 - Oct 2019
<b>MSc in Aerospace engineering</b> <i>ISAE Supaéro, France</i>	Sep 2012 - Sep 2016
<b>MSc in Physics with distinction</b> <i>Imperial College London, United Kingdom</i>	Sep 2014 - Sep 2015

## Publications

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26 peer-reviewed publications (5 further submitted), with 848 total citations (h-index = 17). 10 publications as leading author or student supervisor, of which 6 are post-PhD, and 2 have  $\geq 50$  citations. Source NASA ADS, Aug 25th 2024, ORCID-0000-0002-1515-995X.

### Highlighted works:

- Rey et al. 2024, MNRAS, 528, 5412 – *A much-improved modelling the multi-phase structure of galactic outflows to robustly predicts their ionic emission lines.*
- Rey et al. 2023, MNRAS, 521, 995 – *Pioneering a new approach to Galactic archaeology causally linking the properties of halo stars to the cosmological initial conditions of our Milky Way.*
- Rey et al. 2019b, ApJL, 886, L3 – *A breakthrough publication pinning the key physical mechanisms to explain the diversity of stellar masses and sizes in the faintest, smallest dwarf galaxies.*

## Grants and awards

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- **PI of Beecroft Fellowship in Cosmology**, 3-year of independent post-doctoral research
- Stromlo Distinguished Visitor 2024 and other travel grants from IAU, CASPEN, RAS
- Christopher Skinner Prize for outstanding PhD research

**PI and co-PI of  $\geq 230\text{M}$  CPU hours** on UK and European supercomputers since 2018. Co-I on a further  $\geq 115\text{M}$  CPUh through the EDGE and Vintergatan collaborations. Co-I of 1.5h-DDT on Meer-Kat.

## Team management and leadership

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- Co-PI of the Megatron project, leading a team of 10 observers and theorists to analyse emission and absorption lines from simulated galaxies produced with the brand-new Ramses-RTZ code.
- Founding member of the EDGE and Vintergatan simulation collaborations (> 20 members), leading the development of new physical models, the undertaking of simulations and the scientific analysis.
- Project manager of a student-led satellite mission (2013-2016), leading  $\geq 30$  engineering students to design, build and launch a spacecraft studying atmospheric re-entry.

## Supervision, teaching and mentoring

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**Student supervision:** Main supervisor of 6 student projects since 2018 (5 BSc, 1 MSc). All successfully defended on time, one with a refereed publication (Prgomet, Rey et al. 2022). Examiner for 3 thesis.

**Teaching:** Regular activity since 2017, from 1st-year to graduate courses. 6h as a Lecturer,  $\geq 50$ h as teaching assistant,  $\geq 20$ h of marking.

**Mentoring:** Active in mentoring programs since 2012, for incoming fellow post-docs in Oxford (2021-), incoming PhD students at UCL (2017-2019) and foreign students arriving in France (2012-2016).

## Academic and public speaking

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14 invited colloquiums (last in Canberra, Portsmouth, CalTech) and >10 presentations at international conferences in the last two years. 2 general-public lectures to large audiences (>100 people).

## Media and outreach

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**General media:** Rey et al. (2020) featured in ScienceNews and Forskning and Framsteg, Rey and Starkenburg (2022) in AstroBites. 4 media appearances, most recently in Populär Astronomi.

**Outreach:** Regular activity since 2016, two invited public lectures in France and Sweden. Organiser and contributor to  $\geq 10$  outreach festivals and events, most recently for the Marie Curious program.

## International network and collaborations

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Founding member of the Megatron collaboration (U. of Chicago and U. of Oxford); key member of EDGE and Vintergatan (Lund U. + U. of Surrey + UCL). Individual collaborations with researchers at, amongst others, the American Museum of Natural History, Northwestern U., Strasbourg Obs.

## Professional and communal activities

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**Reviewing, panelling and event organization:**

- Peer-reviewing since 2018 for MNRAS, ApJ, Open Journal (4 papers in the last year).
- Part of review panels for LSST Enable Science grants, student admission in Lund and Oxford.
- SOC/LOC for RUM 2023, Wetton Workshop 2022, Compact Objects for All 2020
- Organizer of Oxford's Galaxy Evolution seminars (2022-), UCL Journal Club (2018-2020)

**Public software (see Martin-Rey on Github):** Part of the main development team of the genetIC software. Regular contributor to public astrophysics libraries, e.g, pynbody, Tangos, Ramses.

## References

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**Prof. Andrew Pontzen**, University College London  
a.pontzen@ucl.ac.uk, +442035495833

**Prof. Pedro Ferreira**, University of Oxford  
pedro.ferreira@physics.ox.ac.uk, +44186573366

**Dr. Oscar Agertz**, Lund University  
oscar.agertz@astro.lu.se, +46462221576

**Prof. Justin I. Read**, University of Surrey  
j.read@surrey.ac.uk, +441483686814

## List of publications – Martin P. Rey

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**Summary:** 26 peer-reviewed publications (5 further submitted), with 848 total citations (h-index = 17). 10 publications as leading author or student supervisor, of which 6 are post-PhD, and 2 have  $\geq 50$  citations. Source NASA ADS, Aug 25th 2024, ORCID-0000-0002-1515-995X.

### Publications as leading author

1. **Martin P. Rey**, Matthew D. A. Orkney, Justin I. Read, Payel Das, Oscar Agertz, Andrew Pontzen, Anastasia A. Ponomareva, Stacy Y. Kim, William McClymont; EDGE – Dark matter or astrophysics? Clear prospects to break dark matter heating degeneracies with HI rotation in faint dwarf galaxies; Monthly Notices of the Royal Astronomical Society, Volume 529, Issue 3, April 2024, Pages 2379-2398
2. **Martin P. Rey**, Harley B. Katz, Alex J. Cameron, Julien Devriendt, Adrienne Slyz; Boosting galactic outflows with enhanced resolution; Monthly Notices of the Royal Astronomical Society, Volume 528, Issue 3, March 2024, Pages 5412-5431
3. **Martin P. Rey**, Oscar Agertz, Tjitske K. Starckenburg, Florent Renaud, Gandhali D. Joshi, Andrew Pontzen, Nicolas F. Martin, Diane K. Feuillet, Justin I Read; Vintergatan-GM: the cosmological imprints of early mergers on Milky-Way-mass galaxies; Monthly Notices of the Royal Astronomical Society, Volume 521, Issue 1, May 2023, Pages 905-1112
4. **Martin P. Rey**, Andrew Pontzen, Oscar Agertz, Matthew D. A. Orkney, Justin I. Read, Stacy D. Kim, Payel Das; EDGE: What shapes the relationship between stellar and HI observables in faint dwarfs?, Monthly Notices of the Royal Astronomical Society, Volume 511, Issue 4, Pages 5672-5681
5. **Martin P. Rey**, Tjitske K. Starckenburg; How cosmological merger histories shape stellar haloes, Monthly Notices of the Royal Astronomical Society, Volume 510, Issue 3, March 2022, Pages 4208-4244
6. **Martin P. Rey**, Andrew Pontzen, Oscar Agertz, Matthew Orkney, Justin I. Read, Joakim Rosdahl; EDGE: from quiescent to gas-rich to star-forming low-mass dwarf galaxies, Monthly Notices of the Royal Astronomical Society, Volume 497, Issue 2, August 2020, Pages 1508-1520
7. **Martin P. Rey**, Andrew Pontzen, Oscar Agertz, Matthew Orkney, Justin I. Read, Amélie Saintonge, Christian Pedersen; EDGE: the origin of scatter in ultra-faint dwarf stellar masses and surface brightnesses, The Astrophysical Journal Letters, Volume 886, Issue 1, November 2019, L3
8. **Martin P. Rey**, Andrew Pontzen, Amélie Saintonge; Sensitivity of dark matter haloes to their accretion histories, Monthly Notices of the Royal Astronomical Society, Volume 485, Issue 2, May 2019, Pages 1906-1915
9. **Martin P. Rey**, Andrew Pontzen; Quadratic genetic modifications: a streamlined route to cosmological simulations with controlled merger history, Monthly Notices of the Royal Astronomical Society, Volume 474, Issue 1, February 2018, Pages 45–54

### Publications as major contributor and/or student supervisor

1. Alex J. Cameron, Harley Katz, **Martin P. Rey**, Aayush Saxena; Nitrogen enhancements 440 Myr after the Big Bang: super-solar N/O, a tidal disruption event or a dense stellar cluster in GN-z11?, Monthly Notices of the Royal Astronomical Society, August 2023, Volume 523, Issue 3, Pages 3516-3525  
*Contribution: Conceptualisation, co-writing original draft (discussion sections).*

2. Mateo Prgomet, **Martin P. Rey**, Eric P. Andersson, Alvaro Segovia Otero, Oscar Agertz, Florent Renaud, Andrew Pontzen, Justin I. Read; EDGE: The sensitivity of ultra-faint dwarfs to a metallicity-dependent initial mass function, Monthly Notices of the Royal Astronomical Society, Volume 513, Issue 2, June 2022, Pages 2326-2334  
*Contribution: Conceptualisation, student supervision, co-writing original draft.*
3. Matthew D. A. Orkney, Justin I. Read, **Martin P. Rey**, Imran Nasim, Andrew Pontzen, Oscar Agertz, Stacy Y. Kim, Maxime Delorme, Walter Dehnen; EDGE: Two routes to dark matter core formation in ultra-faint dwarfs, Monthly Notices of the Royal Astronomical Society, Volume 504, Issue 3, July 2021, Pages 3509-3522  
*Contribution: Generating initial conditions, running simulation suite, draft editing.*
4. Andrew Pontzen, **Martin P. Rey**, Corentin Cadiou, Oscar Agertz, Romain Teyssier, Justin I. Read, Matthew D. A. Orkney; EDGE: A new approach to suppressing numerical diffusion in adaptive mesh simulations of galaxy formation, Monthly Notices of the Royal Astronomical Society, Volume 501, Issue 2, February 2021, Pages 1755-1765  
*Contribution: Conceptualisation, generating initial conditions, running simulation suite, draft editing.*
5. Stopyra, Andrew Pontzen, Hiranya Peiris, Nina Roth, **Martin P. Rey**; GenetIC: a new initial condition generator to support genetically modified zoom simulations, The Astrophysical Journal Supplement Series, Volume 252, Issue 2, February 2021, Pages 28  
*Contribution: Method and code development, refactoring and maintenance for public release, draft editing.*

#### **Publications as collaborator (first-to-last author reflect individual contributions)**

1. Claudia Muni, Andrew Pontzen, Justin I. Read, Oscar Agertz, **Martin P. Rey**, Ethan Taylor; Dark matter core creation depends on the timing of star formation; Submitted to Monthly Notices of the Royal Astronomical Society. ArXiv:2407.14579  
*Contribution: Running simulation suite. Generating data products.*
2. Gandhali Joshi, Andrew Pontzen, Oscar Agertz, **Martin P. Rey**, Justin I. Read, Annalisa Pillepich; The PARADIGM project I: How early merger histories shape the present-day sizes of Milky-Way-mass galaxies? Submitted to Monthly Notices of the Royal Astronomical Society. ArXiv:2407.00171  
*Contribution: Generating and analysing data products, draft editing.*
3. Timmy Ejdetjärn, Oscar Agertz, Göran Östlin, **Martin P. Rey**, Florent Renaud; The origin of the H $\alpha$  line profiles in simulated disc galaxies; Submitted to Monthly Notices of the Royal Astronomical Society.  
*Contribution: Analysis and interpretation, draft editing.*
4. Claudia Muni, Andrew Pontzen, Jason L. Sanders, **Martin P. Rey**, Oscar Agertz, Justin Read; From particles to orbits: precise dark matter density profiles using dynamical information; Monthly Notices of the Royal Astronomical Society, Volume 527, Issue 3, January 2024, Pages 9250-9262  
*Contribution: Running simulation suite, draft editing.*
5. Alex Goater, Justin I. Read, Noelia Noël, Matthew D. Orkney, Stacy Y. Kim, **Martin P. Rey**, Eric P. Andersson, Oscar Agertz, Andrew Pontzen, Roberta Vielte, Dhairya Kataria, Kiah Jeneway; EDGE: The direct link between mass growth history and the extended stellar haloes of the faintest dwarf galaxies; Monthly Notices of the Royal Astronomical Society, Volume 527, Issue 2, January 2024, Pages 2403-2412  
*Contribution: Generating initial conditions, running simulation suite, draft editing.*
6. Gandhali Joshi, Andrew Pontzen, Oscar Agertz, **Martin P. Rey**, Justin I. Read, Florent Renaud;

VINTERGATAN-GM: How do mergers affect the satellite populations of MW-like galaxies? Monthly Notices of the Royal Astronomical Society, Volume 528, Issue 2, February 2024, Pages 2346-2357  
*Contribution: Generating and analysing data products, draft editing.*

7. Charles L. Steinhardt, Albert Snappen, Thorbjørn Clausen, Harley Katz, **Martin P. Rey**, Jonas Stahlschmidt; The Highest-Redshift Balmer Breaks as a Test of  $\Lambda$ CDM, The Astrophysical Journal, Volume 967, Issue 2, June 2024, Pages 172  
*Contribution: Analysing simulations, co-writing original draft.*
8. Matthew D. A. Orkney, Ethan Taylor, Justin I. Read, **Martin P. Rey**, Andrew Pontzen, Oscar Agertz, Stacy Y. Kim, Maxime Delorme; EDGE: The shape of dark matter haloes in the faintest galaxies, Monthly Notices of the Royal Society, Volume 525, Issue 3, November 2023, Pages 3516-3532  
*Contribution: Generating initial conditions, running simulation suite, draft editing.*
9. Sam Geen, Poojan Agrawal, Paul A. Crowther, B.W. Keller, Alex de Koter, Zsolt Keszthelyi, Freeke van de Voort, Ahmad A. Ali, Frank Backs, Lars Bonne, Vittoria Brugaletta, Annelotte Derkink, Sylvia Ekström, Yvonne A. Fichtner, Luca Grassitelli, Ylva Götberg, Erin R. Higgins, Eva Laplace, Kong You Liow, Marta Lorenzo, Anna F. McLeod, Georges Meynet, Megan Newsome, G. André Oliva, Varsha Ramachandran, **Martin P. Rey**, Steven Rieder, Emilio Romano-Díaz, Gautham Sabhahit, Andreas A.C. Sander, Rafia Sarwar, Hanno Stinshoff, Mitchel Stoop, Dorottya Szécsi, Maxime Trebitsch, Jorick S. Vink, Ethan Winch; Bringing Stellar Evolution & Feedback Together: Summary of proposals from the Lorentz Center Workshop, Publications of the Astronomical Society of the Pacific, Volume 135, Issue 1044, February 2023  
*Contribution: Lead of 'Ionizing radiation' section.*
10. Harley Katz, Shenghua Liu, Taysun Kimm, **Martin P. Rey**, Eric P. Andersson, Alex J. Cameron, Francisco Rodriguez-Montero, Oscar Agertz, Julien Devriendt, Adrienne Slysz; PRISM: A non-equilibrium, multiphase interstellar medium model for Ramses-RTZ, arXiv:2211.04626  
*Contribution: Conceptualisation, scientific analysis and draft editing.*
11. Alex J. Cameron, Harley Katz, **Martin P. Rey**; A novel approach to correcting  $T_e$ -based mass-metallicity relations, Monthly Notices of the Royal Astronomical Society Letters, Volume 552, Issue 1, June 2023, Pages L89-L94  
*Contribution: Conceptualisation, scientific analysis and draft editing.*
12. Matthew D. A. Orkney, Justin I. Read, Oscar Agertz, Andrew Pontzen, **Martin P. Rey**, Alex Goater, Ethan Taylor, Stacy Y. Kim, Maxime Delorme; EDGE: The puzzling ellipticity of Eridanus'II star cluster and its implications for dark matter at the heart of an ultra-faint dwarf, Monthly Notices of the Royal Astronomical Society, Volume 515, Issue 1, September 2022, Pages 185-200  
*Contribution: Generating initial conditions, running simulation suite, scientific analysis and draft editing.*
13. Oscar Agertz, Florent Renaud, Sofia Feltzing, Justin I. Read, Nils Ryde, Eric P. Andersson, **Martin P. Rey**, Thomas Bensby, Diane K. Feuillet; VINTERGATAN I: the origins of chemically, kinematically and structurally distinct discs in a simulated Milky-Way-mass galaxy, Monthly Notices of the Royal Astronomical Society, Volume 503, Issue 4, June 2021, Pages 5826-5845  
*Contribution: Scientific analysis and draft editing.*
14. Florent Renaud, Oscar Agertz, Justin I. Read, Nils Ryde, Eric P. Andersson, Thomas Bensby, **Martin P. Rey**, Diane K. Feuillet; VINTERGATAN II: the history of the Milky-Way told by its mergers, Monthly Notices of the Royal Astronomical Society, Volume 503, Issue 4, June 2021, Pages 5846-5867  
*Contribution: Scientific analysis and draft editing.*
15. Florent Renaud, Oscar Agertz, Eric P. Andersson, Justin I. Read, Nils Ryde, Thomas Bensby, **Martin**

**P. Rey**, Diane K. Feuillet; VINTERGATAN III: how to reset the metallicity of the Milky Way, Monthly Notices of the Royal Astronomical Society, Volume 503, Issue 4, June 2021, Pages 5868-5876  
*Contribution: Draft editing.*

16. Oscar Agertz, Andrew Pontzen, Justin I. Read, **Martin P. Rey**, Matthew Orkney, Joakim Rosdahl, Romain Teyssier, Robbert Verbeke, Michael Kretschmer, Sarah Nickerson; EDGE: the mass-metallicity relation as a critical test of galaxy formation physics, Monthly Notices of the Royal Astronomical Society, Volume 491, Issue 2, January 2020, Pages 1656-1672  
*Contribution: Scientific analysis and draft editing.*

### **Other publications**

1. Hypatia colloquium proceedings: From quenched to gas-rich to star-forming: the diversity of faint dwarf galaxies
2. PhD Thesis: Genetically modified galaxies: performing controlled experiments in cosmological galaxy formation simulations
3. Public software GenetIC (cosmological initial condition generator): Version 1.4 and previous  
*Contribution: Main development and maintenance team.*
4. Public software Tangos (analysis package): Version 1.7.0 and previous  
*Contribution: New features, bug fixing.*
5. Public software Pynbody (analysis package): Version 1.3.1 and previous  
*Contribution: New features, bug fixing.*

## Public speaking – Martin P. Rey

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**Summary:** 14 invited colloquiums (last in Canberra, Portsmouth, CalTech) and >10 presentations at international conferences in the last two years. 2 general-public lectures to large audiences (>100 people).

2024 Mar: **Invited Seminar**, UCL

2024 Mar: **Invited colloquium**, ANU

2024 Mar: **Invited colloquium**, Swinburne

2024 Mar: **Invited colloquium**, University of Sydney

2024 Feb: Contributed talk, Building galaxies from scratch, Vienna

2023 Dec: Contributed talk, Resolving Galaxy Ecosystems Across Scales, Hong Kong

2023 Nov: **Invited Seminar**, ICG, Portsmouth

2023 Sep: Tea talk, Cosmic Dawn Centre, Copenhagen

2023 Apr: Contributed talk, Ramses User Meeting, Oxford

2023 Mar: Contributed talk, Galaxy Formation and Evolution in the Data Science Era, KITP

2023 Mar: **Invited colloquium**, TAPIR, CalTech

2023 Feb: **Invited colloquium**, University of Stockholm

2023 Feb: Cosmology group meeting presentation, Imperial College London

2023 Feb: **Invited colloquium**, Cardiff University

2023 Jan: Early-career colloquium, University of Oxford

2022 Dec: **Invited colloquium**, ASTRON, Groningen

2022 Sep: Contributed talk, WMAG 2022

2022 May: Tri-state seminar, CCA, Flatiron Institute University

2022 May: **Invited colloquium**, New York University

2022 May: **Invited Källén Seminar**, Lund Observatory

2022 Apr: **Invited Talk**, Bringing stellar evolution and feedback together, Lorentz Center

2021 Dec: **Invited colloquium**, Centre de Recherche d'Astrophysique de Lyon

2021 Nov: Invited participant, Astrophysical Windows on Dark Matter Workshop, London

2021 Oct: Massive stars and stellar evolution group meeting presentation, Anton Pannekoek

2021 Oct: Galaxy Evolution Seminar, University of Oxford

2021 Oct: Comp theory Group Meeting presentation, ICRAR

2021 Oct: **Invited colloquium**, Observatoire de Strasbourg

2021 Sep: Contributed talk, Ramses User Meeting, Online

2021 Jun: Contributed talk, EAS 2021: the outer reaches of galaxies, Leiden

2021 Jun: Astro Coffee presentation, Princeton

2021 Apr: **Invited Rydberg Seminar**, Physics Institute, Lund

2021 Mar: Invited participant, Bringing stellar evolution and feedback together, Lorentz Center

2021 Mar: **Hypatia Colloquium**, ESO Garching

2021 Mar: **General public lecture**, Staffanstorp Rotary

2020 Aug: Contributed talk, The Local Group assembly and evolution, Baltimore

2020 Jun: Contributed talk, News from the dark workshop, Strasbourg

2020 Feb: **Invited colloquium**, Lund University

2019 Aug: Contributed talk, Small galaxies, cosmic origins, Durham

2019 Jul: Contributed poster, The realm of the low surface brightness universe, Tenerife

2019 Jun: Contributed poster, Feedback and its role in galaxy formation, Spetses

2019 May: Blackboard presentation, Lund University

2018 Oct: Galaxy formation seminar, Rutgers University

2018 Oct: Lunch seminar, Yale University

2018 Oct: Cosmology seminar, Flatiron Institute

2018 Oct: PhD presentations, University College London

2018 Sep: Contributed poster, The role of feedback in galaxy formation, Potsdam

2018 Jul: **General public lecture**, Astr'auvergne festival, Clermont-Ferrand

2017 Sep: Contributed talk, Frontiers of Astrophysical Modelling, Leuven

2017 Sep: Contributed talk, Ramses User meeting, Nice

2017 Jun: Blackboard presentation, Imperial College London

## Teaching and student supervision – Martin P. Rey

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**Resume:** Regular activity since 2017, from 1st-year to graduate courses. 6h as a Lecturer,  $\geq 50$ h as teaching assistant,  $\geq 20$ h of marking. Main supervisor of 6 student projects since 2018 (5 BSc, 1 MSc). All successfully defended on time, one with a refereed publication (Prgomet, Rey et al. 2022). Examiner for 3 thesis.

### List of Courses

1. Lecturer, Topics in Theoretical Astrophysics, Graduate lectures for PhD students, Lund University, 2021, 6h
2. Teaching Assistant, Stellar Structure and Evolution, ASTM25, 1st year Master Course, Lund University, 2020, 2x2h
3. Teaching Assistant, Scientific programming in Java, PHAS3459, 3rd year Bachelor course, University College London, 2018, 10x3h
4. Lecturer and organizer, Scientific programming with Git, Graduate workshop, University College London, 2018, 7h
5. Teaching Assistant and Marker, Mathematical Methods for Physics, PHAS1246, 1st year Bachelor course, University College London, 2018, 2x10h
6. Teaching Assistant and Marker, Astrophysics and Quantum Physics, PHAS1423, 1st year Bachelor course, University College London, 2017, 2x10h

### Student supervision

1. Atharv Mahajan, undergraduate project, main supervisor, Oxford 2023/4
2. Soubhagya Behera, undergraduate project, main supervisor, Oxford 2023/4
3. Laura Meissner, undergraduate and summer project, main supervisor, Oxford 2022
4. Mateo Prgomet, co-supervisor of MSc project and main supervisor of post-MSc project, Lund 2021
5. Tamina Lund, Bachelor Thesis obtained with honours, main supervisor, Lund 2020
6. Elise Darragh-Ford: undergraduate project, main supervisor, 2018

### Thesis examination

1. Camilla Thune Nyhagen, MSc thesis examiner, 2024, University of Oslo
2. Jesper Nielsen, MSc thesis examiner, 2021, Lund University
3. Viktor Jónsson, BSc thesis examiner, 2021, Lund University

## Grant, prizes and awards – Martin P. Rey

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### Grants

- Beecroft Fellowship in Cosmology, 3-year of independent post-doctoral research (PI:  $\approx$  £400,000)

### Awards and prizes

- Christopher Skinner Prize for outstanding PhD research, 2020

### Travel funding

- Stromlo Distinguished Visitor Program ( $\approx$  £3500, 2024)
- IAU conference funding (£500, 2019)
- CASPEN Exchange Program (\$2000, 2018)
- RAS Small Travel Grant (£780, 2018)

### Supercomputing time

- Direct modelling of spectroscopic observables in dwarf galaxies (**PI**: 25M CPUh on UK-DiRAC, 2023)
- EDGE3: From first light to massive black hole seeds (**Co-PI**: 151M CPUh on UK-DiRAC, 2023)
- Dwarf galaxies with individual stars (Co-I: 9.8M CPUh on NASA-HEC, 2023)
- Megatron: Transforming our understanding of galaxies' emission and absorption lines (**Co-PI**: 53M CPUh on UK-DiRAC, 2022)
- EDGE2: Resolving light and dark in isolated dwarfs (Co-I; 43.75M CPUh on UK-DiRAC, 2021)
- Vintergatan-GM: Unravelling the formation of the Milky Way (Co-I; 55.5M CPUh on PRACE-Joliot Curie, 2021)
- How merger histories shape galaxy's stellar haloes (**PI**: 1.4M CPUh on SNIC-Tetralith, 2020)
- Engineering Dwarfs at Galaxy Formation's Edge (Co-I; 6M CPUh; UK-DiRAC, 2019)

### Telescope Time

- Co-I of 1.5h-DDT on Meer-Kat

## Press and outreach activities – Martin P. Rey

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**Summary:** 1 press release, 4 contributions to press articles and radio interviews, 2 general public lectures,  $\geq 10$  contributions to outreach events and workshops.

### **Press coverage of scientific results:**

1. Rey and Starckenburg 2022 in AstroBites.
2. Press release following the results of Rey et al. 2020, "How dwarf galaxies form their stars", in Forskning and Framsteg and Science News.

### **Media contributions and appearances:**

1. Winner of research image competition for 2023 DiRAC Calendar
2. In Populär Astronomi following their coverage of my ESO Hypatia colloquium, 2021
3. In Forskning and Framsteg following their coverage of SDSS results, 2021
4. Written contribution to All About Space Magazine, 2020
5. Radio interview on Radio Arverne, 2019

### **Outreach events:**

1. Virtual exhibition The Art of Astrophysics, 2024
2. Cosmology and Galaxies stall leader and demonstrator for Into the Cosmos, 2023
3. Co-organizer of Marie Curious workshops, 2021–2022
4. Demonstrator for UCL opening day of the KLB building, 2019
5. Co-organiser of astronomy summer schools in festival Astr'Auvergne, 2018
6. Demonstrator for Your Universe festival Your Universe, 2018
7. Demonstrator for astronomy discovery day at the French high school in London, 2018